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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,891	01/15/2004	Gianpiero Santacatterina	IT20020057	4773

173 7590 10/19/2005

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EXAMINER	
NORTON, JENNIFER L	
ART UNIT	**PAPER NUMBER**
2121	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/757,891	SANTACATTERINA ET AL.	
	Examiner	Art Unit	
	Jennifer L. Norton	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-10 are pending.

Claim Objections

2. Claim 9 is objected to because of the following informalities:

Claim 9 contains the grammatical error "on of appliances thereof".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 4, 6-7 and 9 are rejected under 35 U.S.C 102(b) as being anticipated by U.S. Patent No.: 5,572,428 (referred to as Ehlers hereinafter).

5. As per claim 1, Ehlers discloses a process for managing power demand of one or more appliances (col. 8, lines 13-15), the process comprising the steps of: assessing for each appliance an energy consumption profile (Fig. 1, element 18 and 22, col. 14, lines 60-64 and col. 10, lines 13-20) of the one or more

appliances corresponding to its setting (col. 4, lines 50-53, col. 5, lines 45-49 and col. 14, lines 41-43), summing the energy consumption profiles to determine if their sum leads to one or more peaks in power demand (Fig. 26A and 26B, col. 22, lines 22-26 and col. 23, lines 32-34), and providing one or more new energy consumption profiles to the one or more appliances for leveling the total power absorbed by appliances (Fig. 26A and 26B, col. 22, lines 22-26 and col. 23, lines 32-34) .

6. As per claim 2, Ehlers discloses the process set forth in claim 1, wherein the appliances are controlled through on-off switching (col. 25, lines 9-16) and wherein the appliances are synchronized for organizing the on-off switching of single appliances or components (col. 25, lines 28-31) in order to limit peaks of power demand.

7. As per claim 4, Ehlers discloses the process set forth in claim 1, wherein at least one of the new energy consumption profile is based on a delayed switching on of appliances or components thereof (Fig. 4, element 34F and col. 15, lines 39-46).

8. As per claim 6, Ehlers discloses a system for managing and curtailing power demand of appliances (col. 8, lines 13-15), each appliance (col. 11, lines 30-32) having an user interface (Fig. 1, element 22) connected to a control unit (Fig. 3, element 22-E and col. 9, lines 60-62 and) for setting working parameters

(col. 4, lines 50-53, col. 5, lines 45-49 and col. 14, lines 41-43) of the appliance, wherein the control unit is adapted to assess, for each appliance an energy consumption profile corresponding to its setting (Fig. 1, element 18 and 22, col. 14, lines 60-64 and col. 10, lines 13-20), the control unit being adapted to sum the energy consumption profiles in order to check if their sum leads to one or more peaks in the power demand and to provide one or more new energy consumption profiles in order to level or reduce the total power absorbed by appliances or components (Fig. 26A and 26B, col. 22, lines 22-26 and col. 23, lines 32-34) thereof.

9. As per claim 7, Ehlers discloses the system set forth in claim 6, wherein the appliances controlled through on-off switching further comprises a control circuit (col. 25, lines 9-16) adapted to synchronize the appliances for organizing the on-off switching of single appliances (col. 25, lines 28-31) in order to limit peaks of energy demand.

10. As per claim 9, Ehlers discloses the system according to claim 6, wherein the control unit 18 is adapted to provide one or more new energy consumption profiles based on a delayed switching on one of appliances or components thereof (Fig. 4, element 34F and col. 15, lines 39-46).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in further in view of U.S Patent No.: 4,612,619 (referred to as Culp hereinafter).

13. As per claim 8, Ehlers does not expressly teach a system according to claim 7, wherein each on-off switching is based on a duty cycle and wherein a synchronizer is adapted to put in a sequence all the different duty cycles starting from the one related to the load with higher power level, and it is adapted to organize them inside the selected period of control, each duty cycle being placed in a precise position inside the period of control avoiding unnecessary simultaneous activation of loads.

Culp teaches to a system as set forth in claim 7, for leveling energy consumption of loads being controlled (Fig. 1, element 10) by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads (abstract). The load first turned off during the upcoming

period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period (Fig. 3, col. 3, lines 4-16).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a synchronizer that is adapted to put in a sequence all the different duty cycles starting from the one related to the load with higher power level, and is adapted to organize them inside the selected period of control, each duty cycle being placed in a precise position inside the period of control avoiding unnecessary simultaneous activation of loads. It is desirable, during a load cycling routine, to spread the off times uniformly throughout the period to minimize the energy consumption at any given instant in time during the interval. Thus, it is not desirable to have all of the loads on at a given instant of time (col. 1, lines 56-61).

14. As per claim 3, Ehlers does not expressly teach the process set forth in claim 2, wherein each on-off switching is based on a duty cycle and wherein a

synchronizer puts in a sequence all the different duty cycles starting from the one related to the load with higher power level, then organizes them inside a selected period of control, each duty cycle being placed in a precise position inside the period of control avoiding unnecessary simultaneous activation of loads.

Culp teaches to a process as set forth in claim 2, for leveling energy consumption of loads being controlled (Fig. 1, element 10) by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads (abstract). The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period (Fig. 3, col. 3, lines 4-16).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process wherein a synchronizer is adapted to put in a sequence all the different duty cycles starting from the one related to the load with higher power level, and

is adapted to organize them inside the selected period of control, each duty cycle being placed in a precise position inside the period of control avoiding unnecessary simultaneous activation of loads. It is desirable, during a load cycling routine, to spread the off times uniformly throughout the period to minimize the energy consumption at any given instant in time during the interval. Thus, it is not desirable to have all of the loads on at a given instant of time (col. 1, lines 56-61).

15. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in further in view of U.S Patent No.: 6,519,509 (referred to as Nierlich hereinafter).

16. As per claim 5, Ehlers does not expressly teach the process set forth in claim 4, wherein on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances and/or utility in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to a process of future energy consumption profiles (Fig. 3, element 48) as set forth in claim 4, that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic

devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

17. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances and/or utility in order to have a forecast for future total energy consumption on the mains; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

18. As per claim 10, Ehlers does not expressly teach the system set forth in claim 9, wherein the control unit is adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to the future energy consumption profiles (Fig. 3, element 48) set forth in claim 9, that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed

period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a control unit adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or utility company in order to have a forecast for future total energy consumption on the mains; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art that relates electrical power distribution systems and management.

U.S. Patent Publication No.: 2003/0187550 discloses an electrical power distribution and management system for a plurality of sensors with a power grid.

U.S. Patent No.: 6,301, 674 discloses a power supply control method and a power supply control system for controlling power supply on the basis of information of household apparatuses in a network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Norton whose telephone number is 571-272-3694. The examiner can normally be reached on 8:00 a.m - 4:30 p.m.. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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